

### REMARKS

For the Examiner's convenience and reference, Applicant's remarks are presented in substantially the same order in which the corresponding issues were raised in the Office Action. Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, Applicant requests that the Examiner carefully review any references discussed below to ensure that Applicant's understanding and discussion of the references, if any, are consistent with the Examiner's understanding.

### STATUS OF THE CLAIMS

Claims 1-16 were examined and remain pending. Claims 1-16 stand rejected. Claims 1-6, 8-12, and 14-16 have been amended. No claims are cancelled. No new claims have been added. No new matter has been added.

### RESPONSE TO CLAIM OBJECTIONS

Claims 3, 4, and 8 are objected to because the 'if' that occurs in the claims makes any following limitations optionally recited. Thus, Claims 3, 4, and 8 are currently amended to overcome the objections. Specifically, Claims 3 and 8 have been amended to replace 'if' with 'in response to' such that the limitations are not optionally recited, and Claim 4 has been amended to eliminate the 'if' clause altogether.

Claim 16 is objected to because the claim lacks proper antecedent basis for the phrase 'the classification catalog stored in said storage device.' Thus, Claim 16 is currently amended to depend from Claim 15, where the proper antecedent basis is found, instead of from Claim 1.

### RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 112

Claims 1, 3-6, 8, and 11-13 are rejected under 35 U.S.C. 112, second paragraph. Claim 1 is rejected as “being incomplete for omitting essential steps, such omission amounting to a gap between the steps.” The Office Action states that there are omitted steps because “no categories are claimed previous to mentioning ‘each category.’” Thus, Claim 1 is currently amended to replace ‘each category’ with ‘each of at least two categories’ so as to eliminate any allusion to omitted steps.

Claims 3-5, 8, and 11-13 are rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 3, 8, and 11 recite the limitation ‘a given standard,’ but the Office Action states that this limitation is indefinite because “no such standard is claimed, nor is any information claimed as to how to determine said standard.” However, definiteness of claim language must be analyzed, not in a vacuum, but in light of: a) the content of the particular application disclosure; b) the teachings of the prior art; and c) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made. See MPEP § 2173.02. Furthermore, breadth is not indefiniteness. See MPEP § 2173.04.

In this case, the recited limitation of a ‘given standard’ is broad, but not indefinite when read in light of the entire disclosure. See p. 11, line 10 through p. 14, line 17, and figures 5a-c for an explanation of various embodiments of a given standard. For example, in one embodiment, the ‘given standard’ may refer to a value obtained by multiplying the number of documents within a category by a user-defined threshold. See p. 12, line 15. In another embodiment, the ‘given standard’ may refer to a frequency of the number of words in a category divided by the total number of words in the category. See p. 12, line 18. Thus, when read in light of the disclosure, Claims 3, 8, and 11 are not indefinite.

According to the Office Action, Claim 4 is rejected because there is insufficient antecedent basis for the limitations of ‘the given standard’ and ‘the number of documents.’ Thus, Claim 4 is amended to depend from Claim 3 instead of Claim 1. Sufficient antecedent basis for ‘the given standard’ is found in Claim 3. Claim 4 is further amended to eliminate the limitation ‘the number of documents’ such that Claim 4 is in condition to overcome the antecedent basis problems. Claim 4 now recites that the given standard is determined according to “a predetermined threshold.” The use of a predetermined threshold for determining a given

threshold is clearly explained in the disclosure. See p. 11, line 10 through p. 14, line 17, and figures 5a-c for an explanation of various embodiments of a given standard. Thus, when read in light of the disclosure amended Claim 4 is supported and not indefinite.

Claim 5 is rejected for insufficient antecedent basis with regard to the limitation 'said classification catalog.' Claim 5 is currently amended to recite 'said document classification catalog' which now has proper antecedent basis in amended Claim 1.

According to the Office Action, Claim 12 is rejected because "it is unclear how the two values ("said given standard obtained from the number of documents in said other categories" and "a predetermined given standard") are being used in conjunction to determine a standard for judging whether or not a word is an unnecessary word." See the explanation above with regard to Claim 3 which explains that when read in light of the disclosure, it becomes clear how the values are used. However, Claim 12 is currently amended to eliminate the limitation of 'the number of documents in said other categories' such that Claim 12 now recites that the given standard is obtained from "a predetermined threshold." The use of a predetermined threshold for determining a given threshold is clearly explained in the disclosure. See p. 11, line 10 through p. 14, line 17, and figures 5a-c for an explanation of various embodiments of a given standard. Thus, when read in light of the disclosure amended Claim 12 is not indefinite.

Claim 13 is also rejected because, according to the Office Action, "it is unclear how the two values are used in conjunction." See the explanations above with regard to Claims 3 and 12 explaining that when read in light of the disclosure, Claim 13 is not indefinite. One embodiment of the use of "said frequency of the word in said other categories and a total frequency of all words in said other categories is explained on page 12, line 18.

Applicants have amended Claim 6 to resolve the objections and informalities raised by the Examiner. Applicants submit that amended Claim 6 satisfies 35 USC § 112, second paragraph.

Applicant respectfully submits that in view of the current arguments and amendments, Claims 1, 3-6, 8, and 11-13 are in condition to overcome the § 112 rejections.

#### RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 101

Claims 1-7 and 9-14 are rejected under 35 U.S.C. § 101 because, according to the Office Action, the claimed invention is directed to non-statutory subject matter. The Office Action states that although “unnecessary words are being determined in the above mentioned claims, no unnecessary words are being eliminated from the list as a result of these determinations.” Thus, the Office Action concludes that the claims lack a useful result.

Applicants disagree with the Examiner’s position. However, in order to expedite prosecution, Applicants have amended independent Claims 1, 6, 10, and 14 are currently amended to recite the limitation wherein words are eliminated from the recited lists. Applicants submit that the amended independent Claims 1, 6, 10, and 14 clearly provide a useful result. Claims 2-5, 7, and 11-13 depend from independent Claims 1, 6, and 10 respectively, thus the dependent Claims 2-5, 7, and 11-13 also include the specified limitation. Therefore, Claims 1-7 and 9-14 clearly provide a useful result and are in condition to overcome the § 101 rejection.

#### RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 102(b)

Claims 1-2, 5-7, 10, and 14-16 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the article, “A Machine Learning Approach to Web Mining” by Esposito et al. (hereinafter “Esposito”). Applicant respectfully submits that these claims are patentable over the cited reference because the cited reference does not teach or suggest each and every element of these claims as currently amended. Accordingly, Applicant traverses these rejections as outlined below.

#### **CLAIMS 1, 2, and 5**

With regard to the rejection of independent Claim 1, Applicant respectfully submits that amended Claim 1 is patentable over the cited reference because Esposito fails to teach “determining an unnecessary word for a category on the basis of a frequency of appearance of a given word in each other category,” as recited in amended Claim 1. Amended Claim 1 states:

A document automatic classification system, comprising:  
list generation means for generating a word list for each of at least  
two categories by extracting words from a learning  
document set;

**unnecessary word determination means for relatively determining an unnecessary word for a category on the basis of a frequency of appearance of a given word in each other category by using the list generated by said list generation means;**

means for generating a document classification catalog by eliminating words determined to be unnecessary words from each of the word lists; and

means for storing said document classification catalog on a storage device.

(emphasis added).

A claim is anticipated only if the prior art reference teaches every element of the claim. M.P.E.P. § 2131. The Office Action states that Esposito teaches an unnecessary word determination means as recited in Claim 1 on page 193, paragraph 3 which states: “In order to move quasi-stopwords down in the sorted dictionary, the  $MacTF-PF2$  of each term is multiplied by a factor  $1/CF(t)$ , where  $CF(t)$  (category frequency) is the number of class dictionaries in which the word  $t$  occurs. In this way, the sorted dictionary will have the most representative words of each class in the first entries, so that it will be enough to choose the first  $N$  words per dictionary in order to define the set of attributes.” Applicant respectfully disagrees with the Office Action’s assertion.

The Office Action suggests that moving words up or down a list on the basis of a ‘category frequency’ is the equivalent of “determining an unnecessary word for a category on the basis of a frequency of appearance of a given word in each other category.” These two concepts are not equivalent.

As used in Esposito,  $CF(t)$  (category frequency) is defined as the number of class dictionaries (or categories) in which a given word occurs. See p. 193, paragraph 3. Therefore, the prioritization of a word in Esposito only takes into account the number of categories in which a word appears, but does not take into account the number of times a word occurs within those categories. The present invention does take into account the frequency of appearance of a given word within the other categories, which leads to a more accurate and precise document sorting result. Thus, the category frequency disclosed in Esposito, is completely different from the “frequency of appearance of a given word in each other category” as recited in Claim 1. This

distinction between the two inventions leads to substantially different results and makes the present invention patentably distinguishable from Esposito.

Furthermore, the present invention is distinguishable from Esposito, because Esposito fails to disclose a “means for generating a document classification catalog by eliminating words determined to be unnecessary words from each of the word lists.” Instead, Esposito simply prioritizes words by moving them up and down a list such that the most significant words are at the top of the list, but the words are not eliminated from the list. See p. 193, paragraph 3. Therefore, the present invention is further distinguishable from Esposito, where the present invention actually eliminates words from the list once those words are determined to be unnecessary on the basis a their frequency of appearance within each other category. Therefore, Applicant respectfully submits that amended Claim 1 is patentable over Esposito. Consequently, Applicant requests that the rejection of Claim 1 under 35 U.S.C. § 102(b) be withdrawn.

Given that dependent Claims 2 and 5 depend from Claim 1, Applicant respectfully submits that those claims are also patentable over the cited reference. Accordingly, Applicant requests that the rejection of dependent Claims 1, 2, and 5 under 35 U.S.C. § 102(b) be withdrawn.

#### **CLAIMS 6-7, 10, and 14-16**

With regard to independent Claims 6, 10, and 14 Applicant respectfully submits that these claims are also patentable over Esposito, because Esposito fails to teach each and every element of Claims 6, 10, and 14. Like independent Claim 1, independent Claims 6, 10, and 14 as amended, substantially include the limitation of determining and/or eliminating “an unnecessary word for a category on the basis of a frequency of appearance of a given word in each other category.” Esposito fails to disclose this limitation as described above with regard to Claim 1. Therefore, Applicant respectfully submits that amended Claims 6, 10, and 14 are patentable over Esposito. Furthermore, Claims 7, and 15-16 are also patentable over Esposito as depending from Claims 6 and 14 respectively.

#### RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 103(a)

Claims 3-4, 8-9, and 11-12 stand rejected under 35 U.S.C. § 103(a). In particular, Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Esposito in view of U.S. Pre-Grant Publication 2004/0254911 to Grasso (hereinafter “Grasso”). Claims 3-4, 8, and 11-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Esposito in view of U.S. Patent No. 7,043,492 to Neal et al. (hereinafter “Neal”). Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Esposito in view of U.S. Patent No. 6,970,881 to Mohan (hereinafter “Mohan”). Applicant respectfully submits that Claims 3-4, 8-9, and 11-12 are patentable over the cited references because the combination of cited references does not teach or suggest each and every element of these claims. Accordingly, Applicant traverses these rejections as outlined below.

#### **CLAIM 9**

With regard to the rejection of dependent Claim 9, Applicant respectfully submits that this claim is patentable over the cited references as depending from allowable independent Claim 6. As described above, Esposito fails to teach “eliminating an unnecessary word from a category... on the basis of the frequency of appearance in each category.” Consequently, Applicant requests that the rejection of Claim 9 under 35 U.S.C. § 103(a) be withdrawn.

#### **CLAIMS 3-4, 8, and 11-13**

With regard to the rejection of dependent Claim 3-4, 8, and 11-13 Applicant respectfully submits that these claims are patentable over the cited references as depending from allowable independent Claim 1, 6, and 10 respectively. As described above, Esposito fails to teach “eliminating an unnecessary word from a category... on the basis of the frequency of appearance in each category.” Consequently, Applicant requests that the rejection of Claims 3-4, 8, and 11-13 under 35 U.S.C. § 103(a) be withdrawn.

### **CONCLUSION**

As a result of the presented amendments and remarks, Applicant asserts that Claims 1-16 are patentable and in condition for prompt allowance. Should additional information be required regarding the amendment or traversal of the rejections of the independent and dependent claims enumerated above, the Examiner is respectfully asked to notify Applicant of such need. If any impediments to the prompt allowance of the claims can be resolved by a telephone conversation, the Examiner is respectfully requested to contact the undersigned.

Respectfully submitted,

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